

# GEOLOGY (EARTH SCIENCE EDUCATION) - BACHELOR OF SCIENCE

The concentration in earth science education is a collaboration between the Department of Geological Sciences and the Department of Curriculum and Instruction in the College of Education. In this option, students earn a Secondary Licensure as well as a Bachelor of Science in Geology, and become qualified to teach the Broad Sciences at the middle and high school levels. Students take one year of graduate classes in the College of Education to complete the Secondary Licensure.

Students must complete all University degree requirements, which include: General Education requirements, Viewing a Wider World requirements, and elective credits to total at least 120 credits with 48 credits in courses numbered 300/3000 or above. Developmental coursework will not count towards the degree requirements and/or elective credits, but may be needed in order to take the necessary English and Mathematics coursework.

Prefix	Title	Credits
<b>General Education</b>		
<i>Area I: Communications</i>		<b>10</b>
	English Composition - Level 1 <sup>1</sup>	
	English Composition - Level 2 <sup>1</sup>	
	Oral Communication <sup>1</sup>	
<i>Area II: Mathematics</i> <sup>1,2</sup>		<b>3</b>
MATH 1220G	College Algebra (or higher)	
<i>Area III/IV: Laboratory Sciences and Social/Behavioral Sciences</i>		<b>11</b>
GEOL 1110G	Physical Geology	
	or HNRS 2116G Earth, Time and Life	
ASTR 1115G	Introduction to Astronomy Lecture & Laboratory	
	or ASTR 1120G The Planets Lecture & Laboratory	
CEPY 1120G	Human Growth and Behavior	
<i>Area V: Humanities</i> <sup>1</sup>		<b>3</b>
<i>Area VI: Creative and Fine Arts</i> <sup>1</sup>		<b>3</b>
<i>General Education Elective</i>		
BIOL 2610G & BIOL 2610L	Principles of Biology: Biodiversity, Ecology, and Evolution and Principles of Biology: Biodiversity, Ecology, and Evolution Laboratory	<b>4</b>
<b>Viewing A Wider World</b> <sup>3</sup>		<b>6</b>
<b>Departmental/College Requirements</b> <sup>4</sup>		
GEOL 1150	Introduction to Rocks and Minerals	<b>3</b>
GEOL 305V	Fossils and the Evolution of Life	<b>3</b>
GEOL 420	Stratigraphy and Sedimentology	<b>3</b>
GEOL 449	The Geological Profession	<b>1</b>
<b>Geology Departmental Electives (choose four of these courses)</b>		<b>12</b>
GEOL 312	Mineralogy and Optics	
GEOL 335V	Earthquakes, Volcanoes, Hurricanes, and Floods: The Role of Natural Hazards in Civ Past and Present	
GEOL 360	General Geochemistry	
GEOL 399	Igneous and Metamorphic Petrology	
GEOL 444	GIS for Geology	
GEOL 470	Structural Geology	

GEOL 491	Tectonic Evolution of North America	
<b>Non-Departmental Requirements (in addition to Gen.Ed/VWW)</b> <sup>4</sup>		
BIOL 313	Structure and Function of Plants	<b>3</b>
	or BIOL 322 Zoology	
CEPY 2110	Learning in the Classroom	<b>3</b>
CHEM 1215G	General Chemistry I Lecture and Laboratory for STEM Majors <sup>5</sup>	<b>4</b>
	or CHEM 1216 General Chemistry I Lecture and Laboratory for CHEM Majors	
CHEM 1225G	General Chemistry II Lecture and Laboratory for STEM Majors <sup>5</sup>	<b>4</b>
	or CHEM 1226 General Chemistry II Lecture and Laboratory for CHEM Majors	
EDUC 3120	Multicultural Education	<b>3</b>
EDUC 3997	Secondary Field Experience	<b>3</b>
EDUC 4410	Teaching Science at the Middle and High School Level	<b>3</b>
EDUC 4820	Secondary Student Teaching	<b>9</b>
EDUC 4821	Middle and High School Student Teaching Seminar	<b>3</b>
PHYS 1230G	Algebra-Based Physics I	<b>3</b>
	or PHYS 2230G General Physics for Life Science I	
PHYS 1230L	Algebra-Based Physics I Lab	<b>1</b>
	or PHYS 2230L Laboratory to General Physics for Life Science I	
PHYS 1240G	Algebra-Based Physics II	<b>3</b>
	or PHYS 2240G General Physics for Life Science II	
PHYS 1240L	Algebra-Based Physics II Lab	<b>1</b>
	or PHYS 2240L Laboratory to General Physics for Life Science II	
SPED 3105	Introduction to Special Education in a Diverse Society	<b>3</b>
READ 4330	Content Area Literacy	<b>3</b>
<b>Second Language Requirement: (required- see below)</b>		
	Select 8 credits from two semesters of a second language (see section at the bottom of the page)	<b>8</b>
<b>Electives, to bring the total credits to 120</b> <sup>6</sup>		<b>1</b>
<b>Total Credits</b>		<b>120</b>

<sup>1</sup> See the General Education (<https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/>) section of the catalog for a full list of courses

<sup>2</sup> For any Mathematics course selection students may need to take any prerequisites needed to enter the class(es) first.

<sup>3</sup> See the Viewing a Wider World (<https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/#viewingawiderworldtext>) section of the catalog for a full list of courses

<sup>4</sup> May not be taken S/U and a grade of C- or better must be earned.

<sup>5</sup> CHEM 1215G General Chemistry I Lecture and Laboratory for STEM Majors and CHEM 1225G General Chemistry II Lecture and Laboratory for STEM Majors: Preferred

<sup>6</sup> Elective credit may vary based on Math course selection, second language requirements, prerequisites, dual credit, AP credit, double majors, and/or minor coursework. The amount indicated in the requirements list is the amount needed to bring the total to 120 credits and may appear in variable form based on the degree. However students may end up needing to complete more or less on a case-by-case basis and students should discuss elective requirements with their advisor.

Students must work closely with their advisors in order to plan programs that allow them to meet all requirements and earn sufficient upper-division credit.

After completing the BS in Geology, Concentration Earth Science Education, students should apply and be admitted to the Graduate School in the Department of Curriculum and Instruction, and be admitted to the Teacher Education Program (TEP). For additional details, see the School of Teacher Preparation, Administration and Leadership (<https://catalogs.nmsu.edu/nmsu/health-education-social-transformation/tpal/>) portion of the NMSU Catalog.

## Second Language Requirement

For the Bachelor of Science in the Geology there is a one year second language requirement, the options to complete this requirement are listed below. The number of credits that a student needs to take may vary depending on what level they come in with. Please speak with an advisor for more information as to which courses you will need to take to fulfill the second language requirement for this degree.

### Option 1:

Prefix	Title	Credits
<b>Complete one of the following sequences:</b>		
FREN 1110 & FREN 1120	French I and French II	8
GRMN 1110 & GRMN 1120	German I and German II	8
JAPN 1110 & JAPN 1120	Japanese I and Japanese II	8
SPAN 1110 & SPAN 1120	Spanish I and Spanish II	8
PORT 1110 & PORT 1120	Portuguese I and Portuguese II	6
<i>For Heritage Speakers:</i>		
SPAN 1210 & SPAN 1220 or SPAN 2210	Elementary Spanish for Heritage Learners I and Spanish for Heritage Learners II Spanish for Heritage Learners III	6

### Option 2:

Prefix	Title	Credits
<b>Complete the following sequence for American Sign Language (with a C- or better):</b>		
SIGN 1110	American Sign Language I	3
SIGN 1120	American Sign Language II	3

### Option 3:

Prefix	Title	Credits
<b>Challenge the 1120 level for the following courses:</b>		
FREN 1120 or GRMN 1120 or JAPN 1120 or SPAN 1120	French II German II Japanese II Spanish II	4
<i>OR</i>		
<b>Challenge the 1120/1220/2210 level for the following courses:</b>		
PORT 1120 or SPAN 1220 or SPAN 2210	Portuguese II Spanish for Heritage Learners II Spanish for Heritage Learners III	3

### Option 4:

Pass a three-credit, upper-division course (numbered 300 or above) taught in a second language by the department of Languages and Linguistics.

### Option 5:

Obtain college certification of completion of three years of a second language at the high school level with a grade of C- or higher in the second-year level.

### Option 6:

By obtaining certification of a working knowledge of a Native American language from the American Indian program director.

### Option 7:

By obtaining, from the head of the Department of Languages and Linguistics, certification of a working knowledge of a second language if such language is not taught at NMSU.

### Option 8:

In the case of a foreign student who is required to take the TOEFL exam admission, the dean will automatically waive the second language requirement.

## A Suggested Plan of Study for Students

This roadmap assumes student placement in MATH 1220G College Algebra and ENGL 1110G Composition I. The contents and order of this roadmap may vary depending on initial student placement in mathematics and English. It is only a suggested plan of study for students and is not intended as a contract. Course availability may vary from fall to spring semester and may be subject to modification or change.

### First Year

Semester 1		Credits
English Composition - Level 1 Course <sup>1</sup>		4
GEOL 1110G or HNRS 2116G	Physical Geology or Earth, Time and Life	4
CEPY 1120G	Human Growth and Behavior	3
MATH 1220G	College Algebra	3
Elective Course <sup>2</sup>		1
<b>Credits</b>		<b>15</b>

### Semester 2

Oral Communication Course <sup>1</sup>		3
CEPY 2110	Learning in the Classroom	3
BIOL 2610G & BIOL 2610L	Principles of Biology: Biodiversity, Ecology, and Evolution and Principles of Biology: Biodiversity, Ecology, and Evolution Laboratory	4
Area V: Humanities Course <sup>1</sup>		3
Area VI: Creative and Fine Arts course <sup>1</sup>		3
<b>Credits</b>		<b>16</b>

### Second Year

Semester 1		Credits
GEOL 1150	Introduction to Rocks and Minerals	3
GEOL 305V	Fossils and the Evolution of Life	3
CHEM 1215G or CHEM 1216	General Chemistry I Lecture and Laboratory for STEM Majors or General Chemistry I Lecture and Laboratory for CHEM Majors	4
EDUC 3120	Multicultural Education	3

Second Language first course in sequence <sup>3</sup>		4
<b>Credits</b>		<b>17</b>
<b>Semester 2</b>		
GEOL 420	Stratigraphy and Sedimentology	3
Geology Departmental Elective Course <sup>4</sup>		3
CHEM 1225G or CHEM 1226	General Chemistry II Lecture and Laboratory for STEM Majors or General Chemistry II Lecture and Laboratory for CHEM Majors	4
SPED 3105	Introduction to Special Education in a Diverse Society	3
Second Language second course in sequence <sup>3</sup>		4
<b>Credits</b>		<b>17</b>
<b>Third Year</b>		
<b>Semester 1</b>		
Geology Departmental Elective Course <sup>4</sup>		3
PHYS 1230G or PHYS 2230G	Algebra-Based Physics I or General Physics for Life Science I	3
PHYS 1230L or PHYS 2230L	Algebra-Based Physics I Lab or Laboratory to General Physics for Life Science I	1
Viewing a Wider World course <sup>5</sup>		3
EDUC 3997	Secondary Field Experience	3
Student who need to enroll in 15 credits for Financial Aid purposes will need to take additional elective credits		
<b>Credits</b>		<b>13</b>
<b>Semester 2</b>		
Geology Departmental Elective <sup>4</sup>		3
PHYS 1240G or PHYS 2240G	Algebra-Based Physics II or General Physics for Life Science II	3
PHYS 1240L or PHYS 2240L	Algebra-Based Physics II Lab or Laboratory to General Physics for Life Science II	1
BIOL 313 or BIOL 322	Structure and Function of Plants or Zoology	3
READ 4330	Content Area Literacy	3
Viewing a Wider World Course <sup>5</sup>		3
<b>Credits</b>		<b>16</b>
<b>Fourth Year</b>		
<b>Semester 1</b>		
Geology Departmental Elective Course <sup>4</sup>		3
GEOL 449	The Geological Profession	1
ENGL 2210G or ENGL 2210H	Professional and Technical Communication or Professional and Technical Communication	3
ASTR 1120G	The Planets Lecture & Laboratory	4
EDUC 4410	Teaching Science at the Middle and High School Level	3
Student who need to enroll in 15 credits for Financial Aid purposes will need to take additional elective credits		
<b>Credits</b>		<b>14</b>
<b>Semester 2</b>		
EDUC 4820	Secondary Student Teaching	9
EDUC 4821	Middle and High School Student Teaching Seminar	3
<b>Credits</b>		<b>12</b>
<b>Total Credits</b>		<b>120</b>

<sup>1</sup> See the General Education (<https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/>) section of the catalog for a full list of courses.

<sup>2</sup> Elective credit may vary depending on prerequisites, dual credit, AP credit, double majors, and/or minor coursework. The elective credit in the requirement list is the amount needed to bring the total to 120 credits and may vary based on the degree. Students may need to complete more or less courses on a case-by-case basis and each student should discuss this with their advisor.

<sup>3</sup> See the Second Language section of the Requirements Tab (<https://catalogs.nmsu.edu/nmsu/arts-sciences/geological-sciences/geology-earth-environmental-sciences-bachelor-science/#requirementstext>) for this degree for more information.

<sup>4</sup> **Departmental Electives:**

- GEOL 312 Mineralogy and Optics
- GEOL 335V Earthquakes, Volcanoes, Hurricanes, and Floods: The Role of Natural Hazards in Civ Past and Present
- GEOL 360 General Geochemistry
- GEOL 399 Igneous and Metamorphic Petrology
- GEOL 444 GIS for Geology
- GEOL 470 Structural Geology
- GEOL 491 Tectonic Evolution of North America

<sup>5</sup> See the Viewing a Wider World (<https://catalogs.nmsu.edu/nmsu/general-education-viewing-wider-world/#viewingawiderworldtext>) section of the catalog for a full list of courses.